

WHAT IS CLAIMED IS:

1. A light-emitting panel comprising:

a data line transferring a data signal;

5 a scan line transferring a scan signal;

a voltage applying line applying potential difference, the voltage applying line having first and second ends, the first end being electrically connected to an external power supply;

10 a switching device having a first electrode, a second electrode and a third electrode, the first electrode being electrically connected to the data line, the second electrode being electrically connected to the scan line, the third electrode outputting the data signal;

15 a light-emitting device having a fourth electrode and a fifth electrode, the fourth electrode being electrically connected to a reference voltage, an amount of a light generated from the light-emitting device having a relation to an amount of a density of a current applied to the light-emitting device; and

20 a driving device having a sixth electrode, a seventh electrode and a eighth electrode, the sixth electrode being electrically connected to the fifth electrode, the seventh electrode being electrically connected to the voltage applying line, the eighth electrode being electrically connected to the third line to receive the data signal,

wherein the voltage applying line satisfies a following condition

$$\frac{j\Delta V_{max}}{n} < A \frac{j\Delta V_{data}}{GS} \frac{1}{n} [Volt]$$

wherein ΔV_{max} is a maximum voltage drop; 'n' is a number of pixels that are

electrically connected to the voltage applying line, 'A' is a correction coefficient that is in a range from about 1 to about 4, ΔV_{data} is a voltage difference between the gray scales, and GS is a number of gray scale.

5 2. The light-emitting panel of claim 1, wherein the voltage applying line is in parallel to the data line.

10 3. The light-emitting panel of claim 1, wherein the voltage applying line is in parallel to the scan line.

15 4. The light emitting panel of claim 1, wherein the correction coefficient 'A' is in a range from about 1 to about 2.

20 5. The light-emitting panel of claim 1, wherein the voltage applying line comprises a first layer and a second layer, the first layer comprising an aluminum-neodymium (AlNd), a thickness of the first layer being in a range from about 3,000Å to about 6,000Å, the second layer comprising a molybdenum-tungsten (MoW), a thickness of the second layer is about 500Å.

25 6. The light -emitting panel of claim 1, wherein the second end of the voltage applying line is also electrically connected to the external power.

7. The light-emitting panel of claim 6, wherein the correction coefficient 'A' is in a range from about 2 to about 4.

8. A light-emitting panel comprising:

a data line transferring a data signal;

a scan line transferring a scan signal;

a voltage applying line applying potential difference, the voltage applying line

5 having first and second ends, the first end being electrically connected to an external power supply;

a switching device having a first electrode, a second electrode and a third electrode, the first electrode being electrically connected to the data line, the second electrode being electrically connected to the scan line, the third electrode outputting

10 the data signal;

a light-emitting device having a fourth electrode and a fifth electrode, the fourth electrode being electrically connected to a reference voltage, wherein an amount of a light generated from the light-emitting device relates to an amount of a density of a current applied to the light-emitting device; and

15 a driving device having a sixth electrode, a seventh electrode and a eighth electrode, the sixth electrode being electrically connected to the fifth electrode, the seventh electrode being electrically connected to the voltage applying line, the eighth electrode being electrically connected to the third line to receive the data signal,

wherein the voltage applying line satisfies a following condition

$$20 \quad \frac{L_v}{P(\text{White})} < \frac{\frac{j\Delta V_{\text{data}}}{GS}}{\frac{(A - \frac{0.5n}{0.5n}) - 0.00001}{2300}}$$

wherein L_v is a electrical resistance of the voltage applying line between the pixels, $P(\text{White})$ is a electrical resistance of the light-emitting device emitting white light, 'A' is a correction coefficient that is in a range from about 1 to about 4, ΔV_{data} is a

voltage difference between the gray scales, GS is a number of gray scale, and 'n' is a number of pixels that are electrically connected to the voltage applying line.

9. The light-emitting panel of claim 8, wherein the voltage applying line
5 is in parallel to the data line.

10. The light emitting panel of claim 8, wherein the voltage applying line
is in parallel to the scan line.

10 11. The light emitting panel of claim 8, wherein the correction coefficient
'A' is in a range from about 1 to about 2.

12. The light-emitting panel of claim 8, wherein the voltage applying line
comprises a first layer and a second layer, the first layer comprising an aluminum-
15 neodymium (AlNd), a thickness of the first layer being in a range from about 3,000Å
to about 6,000Å, the second layer comprising a molybdenum-tungsten (MoW), a
thickness of the second layer is about 500Å.

13. The light-emitting panel of claim 8, wherein the second end of the
20 voltage applying line is also electrically connected to the external power.

14. The light-emitting panel of claim 13, wherein the correction
coefficient 'A' is in a range from about 2 to about 4.

25 15. A light-emitting apparatus comprising:

a timing control part receiving an image signal and a control signal of the image signal to produce first and second timing signals and a power control signal;

5 a column driving part receiving the image signal and the first timing signal to output a data signal;

a row driving part receiving the second timing signal to output a scan signal;

10 a power supplying part receiving the power control signal to apply a voltage in accordance with the power control signal;

a data line transferring a data signal; and

15 a light-emitting panel including i) a data line transferring a data signal, ii) a scan line transferring a scan signal, iii) a voltage applying line applying potential difference, the voltage applying line having first and second ends, the first end being electrically connected to an external power supply, iv) a switching device having a first electrode, a second electrode and a third electrode, the first electrode being electrically connected to the data line, the second electrode being electrically connected to the scan line, the third electrode outputting the data signal, v) a light emitting device having a fourth electrode and a fifth electrode, the fourth electrode being electrically connected to a reference voltage, an amount of a light generated from the light-emitting device having a relation to an amount of a density of a current applied to the light-emitting device, vi) a driving device having a sixth electrode, a seventh electrode and a eighth electrode, the sixth electrode being electrically connected to the fifth electrode, the seventh electrode being electrically connected to the voltage applying line, the eighth electrode being electrically connected to the third line to receive the data signal,

20 wherein the voltage applying line satisfies a following condition

$$\frac{|\Delta V_{\text{max}}|}{n} < A \frac{|\Delta V_{\text{data}}|}{GS} [\text{Volt}]$$

wherein $|\Delta V_{\text{max}}$ is a maximum voltage drop, 'n' is a number of pixels those are electrically connected to the voltage applying line, 'A' is a correction coefficient that is in a range from about 1 to about 4, $|\Delta V_{\text{data}}$ is a voltage difference between the gray scales, and GS is a number of gray scale.

16. The light-emitting apparatus of claim 15, wherein the voltage applying line is in parallel to the data line.

10 17. The light-emitting apparatus of claim 15, wherein the voltage applying line is in parallel to the scan line.

18. The light-emitting apparatus of claim 15, wherein the correction coefficient 'A' is in a range from about 1 to about 2.

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19. The light-emitting apparatus of claim 15, wherein the voltage applying line comprises a first layer and a second layer, the first layer comprising an aluminum-neodymium (AlNd), a thickness of the first layer being in a range from about 3,000Å to about 6,000Å, the second layer comprising a molybdenum-tungsten (MoW), a thickness of the second layer being about 500Å.

20. The light-emitting panel of claim 15, wherein the second end of the voltage applying line is also electrically connected to the external power.

21. The light-emitting apparatus of claim 20, wherein the correction coefficient 'A' is in a range from about 2 to about 4.

5 22. A light-emitting apparatus comprising:

a timing control part receiving an image signal and a control signal of the image signal to output first and second timing signals and a power control signal;

10 a column driving part receiving the image signal and the first timing signal to output a data signal;

15 a row driving part receiving the second timing signal to output a scan signal;

a power supplying part receiving the power control signal to apply a voltage in accordance with the power control signal;

20 a data line transferring a data signal; and

25 a light-emitting panel including, i) a data line transferring a data signal, ii) a scan line transferring a scan signal, iii) a voltage applying line applying potential difference, iv) a switching device having a first electrode, a second electrode and a third electrode, the first electrode being electrically connected to the data line, the second electrode being electrically connected to the scan line, the third electrode outputting the data signal, v) a light-emitting device having a fourth electrode and a fifth electrode, the fourth electrode being electrically connected to a reference voltage, an amount of a light generated from the light-emitting device having a relation to an amount of a density of a current applied to the light-emitting device, vi) a driving device having a sixth electrode, a seventh electrode and a eighth electrode, the sixth electrode being electrically connected to the fifth electrode, the seventh electrode being electrically connected to the voltage applying line, the eighth

electrode being electrically connected to the third line to receive the data signal,

wherein the voltage applying line satisfies a following condition

$$\frac{L_v}{P(\text{White})} < \frac{\frac{\Delta V_{\text{data}}}{GS}}{2300} \cdot \left(A \frac{0.5n}{0.5n} \right) - 0.00001$$

wherein L_v is a electrical resistance of the voltage applying line between the pixels,

5 $P(\text{White})$ is a electrical resistance of the light-emitting device emitting white light, 'A' is a correction coefficient that is in a range from about 1 to about 4, ΔV_{data} is a voltage difference between the gray scales, GS is a number of gray scale, and 'n' is a number of pixels those are electrically connected to the voltage applying line.

10 23. The light-emitting apparatus of claim 22, wherein the voltage applying line is in parallel to the data line.

24. The light-emitting apparatus of claim 22, wherein the voltage applying line is in parallel to the scan line.

15 25. The light-emitting apparatus of claim 22, wherein the correction coefficient 'A' is in a range from about 1 to about 2.

20 26. The light-emitting apparatus of claim 22, wherein the voltage applying line comprises a first layer and a second layer, the first layer comprising an aluminum-neodymium (AlNd), a thickness of the first layer being in a range from about 3,000Å to about 6,000Å, the second layer comprising a molybdenum-tungsten (MoW), a thickness of the second layer being about 500Å.

27. The light-emitting panel of claim 22, wherein the second end of the voltage applying line is also electrically connected to the external power.

5 28. The light-emitting apparatus of claim 27, wherein the correction coefficient 'A' is in a range from about 2 to about 4.

10 29. An organic light-emitting apparatus comprising:
a timing control part receiving an image signal and a control signal of the image signal to output first and second timing signals and a power control signal;

15 a column driving part receiving the image signal and the first timing signal to output a data signal;
a row driving part receiving the second timing signal to output a scan signal;
a power supplying part receiving the power control signal to apply a voltage
in accordance with the power control signal;

20 a data line transferring a data signal; and
an organic light-emitting panel including, i) a data line transferring a data signal, ii) a scan line transferring a scan signal, iii) a voltage applying line applying potential difference, the voltage applying line having first and second ends, the first and second ends being electrically connected to the power supplying part, iv) a switching device having a first electrode, a second electrode and a third electrode, the first electrode being electrically connected to the data line, the second electrode being electrically connected to the scan line, the third electrode outputting the data signal, v) an organic light emitting device having a fourth electrode and a fifth electrode, the fourth electrode being electrically connected to a reference voltage, an
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amount of a light generated from the organic light-emitting device having a relation to an amount of a density of a current applied to the organic light-emitting device, vi) a driving device having a sixth electrode, a seventh electrode and a eighth electrode, the sixth electrode being electrically connected to the fifth electrode, the seventh electrode being electrically connected to the voltage applying line, the eighth electrode being electrically connected to the third line to receive the data signal,

30. The organic light-emitting apparatus of claim 29, wherein the voltage applying line is in parallel to the data line.

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31. The organic light-emitting apparatus of claim 29, wherein the voltage applying line is in parallel to the scan line.

32. The organic light-emitting apparatus of claim 29, wherein the voltage applying line comprises a first layer and a second layer, the first layer comprising an aluminum-neodymium (AlNd), a thickness of the first layer being in a range from about 3,000Å to about 6,000Å, the second layer comprising a molybdenum-tungsten (MoW), a thickness of the second layer being about 500Å.